Message

**From:** Ross, Steve@DTSC [Steve.Ross@dtsc.ca.gov]
**Sent:** 6/17/2015 10:31:19 PM
**To:** christopher.fennessy@Rocket.com
**CC:** MacDonald, Alex@Waterboards [Alex.MacDonald@waterboards.ca.gov]; Santiago-Ocasio, Carmen [Santiago-Ocasio.Carmen@epa.gov]; 'Tom Lae(Tom.Lae@CH2M.com)' (Tom.Lae@ch2m.com) [Tom.Lae@ch2m.com]
**Subject:** Draft Area 40 RIS Comments

Hi Chris,

Thank you for the opportunity to review and comment on Draft Remedial Investigation Supplement (RIS) for Area 40, Island Operable Unit (OU-7) dated April 2015. The RIS is detailed and well organized. The review and comments are focused on 1) analyzing if the supplemental remedial investigation effort was completed in accordance with the approved *Remedial Investigation/Feasibility Study Field Sampling Plan Addendum (FSP Addendum) for Area 40 Supplement Investigation*, dated December 4, 2014; 2) determining if reported results aided in filling the applicable data quality objectives (DQO) identified in the FSP Addendum; and 3) evaluating if the nature and extent of contamination are well understood such that risk assessments and remedial alternative analysis activities may proceed. The following are comments on the RIS.

## I. Soil Vapor:

1. Page 4-7, first bullet & Figure 4.1-6, MS Access Database file. 36B SP37 location contains TCE soil vapor at 800,000 ug/$m^3$ and PCE at 15,000 ug/$m^3$ at 10' depth below ground surface (bgs). Both soil vapor results are above their respective residential remedial investigation screening levels and the soil vapor vadose zone extent is not bounded laterally towards the N, S, or W direction.
2. Page 4-10, second to last paragraph, Appendix D. Sample 36B SP38 reports 1,1,1-TCA at 190000 ppbv in air_final_40_tics file which should be brought to air_final_A40 and reported in ug/$m^3$.
3. MS Access Database file. MS Access Database file does not include VOC data results for 37B-SP30 which was identified as a sample point location in figure 12A of the FSP. The results at this location were intended to act as the starting point for any additional step-in sample needed to the north per Aerojet response to DTSC comment 7 in the approved RIS FSP. It is unclear if these activities occurred.
4. MS Access Database file. Could not locate the VOC data results for permanent vapor wells 39B-VW36 and 39B-VW37 in the MS Access Database file air_final_A40. These wells were proposed in Figure 13A and Table 4 of the approved RIS FSP.
5. MS Access Database file, page 4-11. Regarding installed permanent vapor wells and groundwater monitoring wells supporting the Area 40 response action effort, Aerojet may benefit from collecting additional data on a periodic basis for a more robust dataset in future preparation of the remedial alternative analysis.
6. Appendix E. The field activities were expected to develop a soil vapor profile at five locations by collecting 5', 10' and 20' bgs (or just above the water table) soil vapor samples. This was not fully completed for various reasons. The soil vapor profile shortcomings from the RIS

should be fully explained and any corrective measures identified, if any, that may be necessary to supplement the human health, ecological risk, or remedial alternative analysis.

7. Appendix E. The deviations table in Appendix E indicates vapor wells 36B-VW27, 36B-VW29, 36B-VW31, 36B-VW35, and 36B-VW39 as not needed. These locations were identified for construction in the Agencies approved RIS FSP Addendum, Figure 12A.
8. Permanent vapor wells. Considering including any available RIS vapor well as-built construction details in an appendix.
9. TO-15. Consider including available field data sheets for the TO-15 sample collection efforts, canister certifications, direct connection to auto samplers, blank samples, GC/MS Scan vs. SIM, QC data files, etc. in an Appendix.

## II. Soil:

1. Background data set: There have been considerable discussions between the Agencies regarding the background data set for Xerorthents and Redding-Corning-Red Bluff surface soils for the BOU ROD. Inconsistencies have been identified in the use of the 2007 background study versus the dataset in Appendix C of the BOU RI. Please include as an appendix the background metals data set to be used for soils and sediments for Area 40.
2. RIS soil borings. Consider including available RIS soil lithology logs collected at depth in an Appendix.
3. The December 1989 RI Scoping Report, Volume 6 includes ground disturbance related to backhoe and auger related activities in the vicinity of the source areas of Area 40. A summary of these activities and the destination of the materials generated would be useful in the RIS report.

## III. Groundwater:

1. Page 2-7, Section 2.4, Page 5-6, Section 5.3, Appendix H. A discussion of the current capability of the dual wall permeable reactive barrier (PRB) for treating VOCs and perchlorate in Layer A groundwater as well as presentation of the groundwater monitoring data from all wells immediately upgradient and downgradient of the PRB in Appendix D would be useful.
2. Page 5-2, last paragraph, Page 5-6, first paragraph. The approved RIS FSP Addendum for Area 40 includes proposed Layer A monitoring wells 8000-8019 and bedrock monitoring wells 9000-9006 (I count 26, not 30 as reported in the RIS), yet none of these wells are in the Section 5 RIS figures nor could they be found in the MS Access gw_final file. Consider including available RIS well construction details in an Appendix.
3. Page 5-3, Section 5.2.1, Section 5.3.1 & 5.3.2, Appendix G. Consider developing cross section transects of contaminant profiles in the RIS in vicinity of Area 40 source areas.

## IV. Surface Water and Sediment:

Figure 2-4, MS Access. For the surface water flows, the database does not contain results for Area 40 during any phase of the investigation in Appendix D.

## V. Radiological:

No comments. Don't find anything which would contradict the survey data evaluation and findings contained in the March 2015 Technical Memorandum – Area 40 Scoping Area Survey and Soil Sampling Approach. Defer analysis to USEPA.

## VI. Minor comments:

1. Section 5.3, Second paragraph. Missing an "s" in summarizes.
2. Table 3.1. Check specific input parameter entries, values, and comment references in this table. Some entries appear to be dated and inconsistent with the current HHRA White Paper.
3. Page 7-1. There is no Table 7.0 in the RIS. The reference to Table 7.0 on page 7-1 looks to be Table 7.1.
4. Table 7.1. For soil vapor, 2-methylbutane and aluminum, tripropyl are not in the table but are mentioned on top of page 4-11.
5. Appendix B, Table 3. Aerojet should consider at some point updating the chemical parameters based on the January 2015 RSLs.
6. Appendix B, Table 6. Similar to Table 5, please provide in Table 6 1) sample calculation for obtaining the 0.717 ug/kg soil concentration for TCE; and 2) sample calculation for obtaining the soil vapor concentration of 741 ug/m3 for TCE for Area 40 site under "Notes".
7. Table 4.1-3b, Table 4.2-3a, Appendix E, Table E-2. The USEPA January 2015 RSLs identify total petroleum hydrocarbons (TPH) into six entries. Three relate to aliphatic compounds for low, medium, and high molecular weight. Three relate to aromatic compounds for low, medium, and high molecular weight. A response from USEPA contact on RSL usage on the subject matter was as follows…..

The six TPH fractions were assigned representative compounds for determination of toxicity values and chemical-specific parameters to calculate RSLs. The PPRTV paper was the principal source for the derivation of these values.

The carbon ranges and representative compounds are listed in the table below. An average of the chemical-specific parameters for 2-methylnaphthalene and naphthalene was calculated for the medium aromatic fraction.

| TPH Fractions | Number of Carbons | Equivalent Carbon Number Index | Representative Compound (RfD/RfC) |
|---|---|---|---|
| Low aliphatic | C5-C8 | EC5-EC8 | n-hexane |
| Medium aliphatic | C9-C18 | EC>8-EC16 | hydrocarbon streams* |
| High aliphatic | C19-C32 | EC>16-EC35 | white mineral oil |
| Low aromatic | C6-C8 | EC6-EC<9 | benzene |

| | | | |
|---|---|---|---|
| Medium aromatic | C9-C16 | EC9-EC<22 | 2-methylnaphthalene/naphthalene |
| High aromatic | C17-C32 | EC>22-EC35 | fluoranthene |

*Medium aliphatic representative compound was not listed in PPRTV paper so n-nonane was selected.

Please let me know if you have any questions.

Steve.